TEXAS DEPARTMENT OF TRANSPORTATION

Texas Rail System Plan Summary

October 2005

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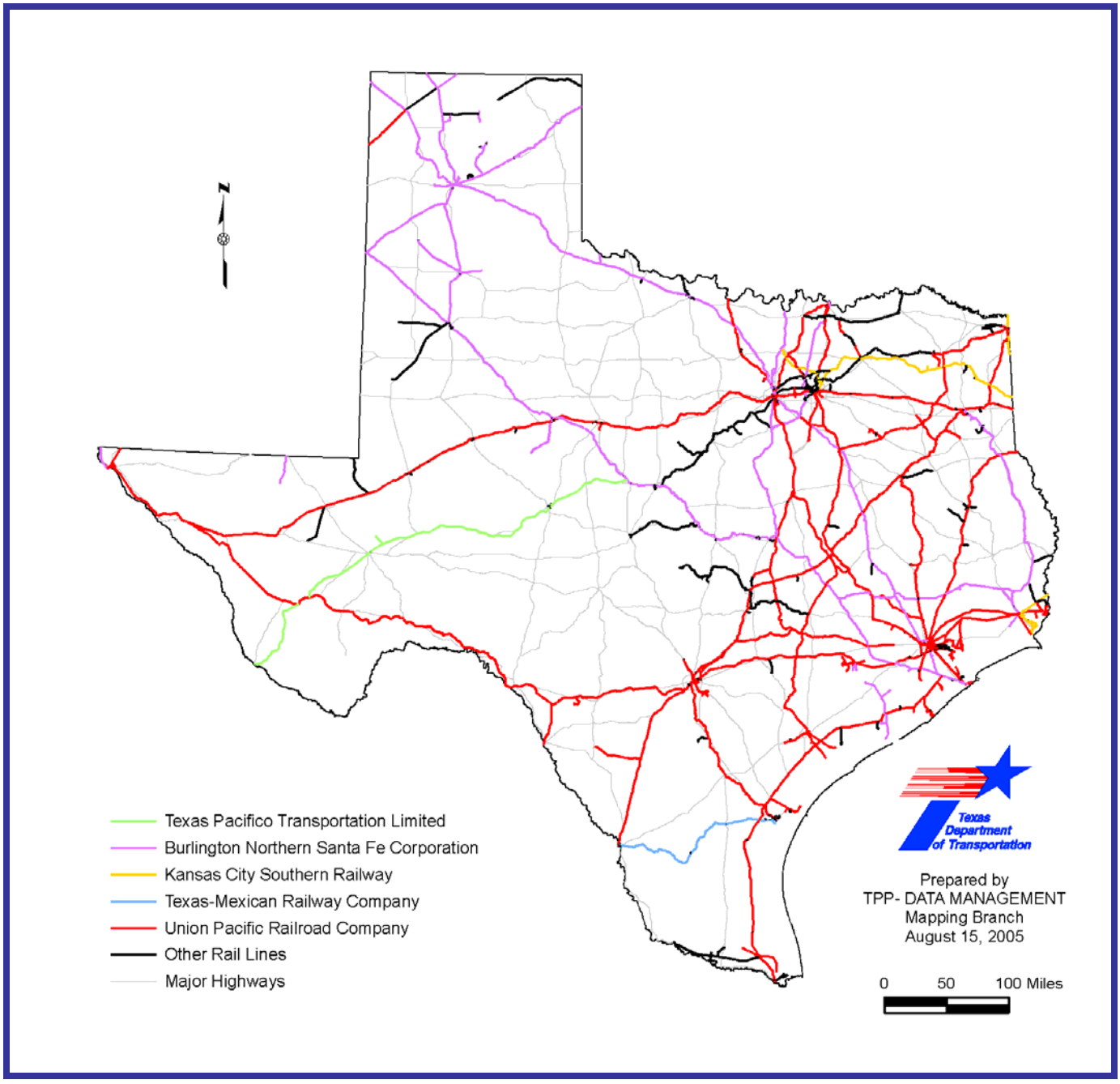
Table of Contents

List of Figures

List of Tables

Figure 1 Texas Rail Lines and Major Highways



Executive Summary

The purpose of the Texas Rail System Plan (TRSP) is to identify current and proposed rail projects, determine infrastructure and capacity needs on the Texas rail system, and develop an awareness of the issues and processes by which to address rail infrastructure needs by transportation policy makers.

The mission of the Texas Department of Transportation (TxDOT) is to provide safe, effective and efficient movement of people and goods. TxDOT fulfills its mission by focusing on five objectives:[1]

- Reliable Mobility
- Improved Safety
- System Preservation
- Accelerated Project Delivery
- Economic Vitality

To address these objectives, TxDOT has established five fundamental strategies for carrying out its mission. They are:

- Plan It
- Build It
- Use It
- Maintain It
- Manage It

Plan It

The Surface Transportation Board (STB) categorizes rail carriers into three classes based upon annual earnings. In Texas the Class I railroads are the Burlington Northern Santa Fe Railway (BNSF), the Kansas City Southern Railway (KCS) and the Union Pacific Railroad (UP); the Class II or regional railroad is the Texas Mexican Railway (TexMex); and the remainder of the state's railroads are considered Class III or "short lines", who often engage in specialized services to provide connecting service between local shippers and the national Class I railroad system (Figure 1).

The TRSP was initiated in response to the increasing involvement by the state of Texas in freight and passenger rail issues, and to provide a baseline analysis of the current rail system in the state. The rapid economic growth of the state has resulted in ever-increasing freight volumes through the state's water ports, on the Texas rail system and along Texas highways.

Policy makers, planners and the public need to understand how the rail system fits into the overall statewide transportation system. This will allow them to incorporate rail transportation system improvements into long-range planning processes in order to improve regional and statewide safety and mobility.

Historically, TxDOT has been limited in its ability to expend funds on rail projects without specific legislative appropriations. In 2005, the 79th Texas Legislature passed bills enabling the expenditure of funds by TxDOT for rail projects. These bills will allow TxDOT to improve transportation system safety and efficiency through targeted improvements to the Texas rail system. This new legislation will increase TxDOT's involvement in rail projects and the further development of the state's multimodal transportation system.

Build and Maintain It

There are several urban areas in Texas that desire to revamp their local and regional rail systems to:

- Improve safety
- Increase mobility
- Protect air quality
- Facilitate economic development
- Improve the efficiency of their transportation systems

Some stakeholders' concerns extend beyond Texas borders to include interstate and international impacts. Many rural areas

are in need of connections to statewide transportation systems via alternative modes to provide economic opportunities in smaller communities.

Rail improvements made in one region may impact transportation operations in other regions. The need for a statewide perspective and comprehensive coordination of planning efforts has led TxDOT to initiate a series of regional rail assessments to determine possible ways to assist with rail system improvements.

To help address rail infrastructure needs and constraints in the state, TxDOT has:

- Initiated freight corridor studies to identify freight bottlenecks and infrastructure needs in specific areas or regions, including the determination of alternative modes or alignments to improve freight efficiencies;
- Encouraged the use of rail transportation in the state as a means to reduce highway congestion from increasing truck volumes;
- Worked to develop programs to utilize available federal funding;
- Continued a robust research program into the state's rail transportation needs; and
- Worked to preserve and enhance rail corridors subject to abandonment.

Use and Manage It

TxDOT's immediate involvement in the preservation and development of the state's railroad system is focused on the following areas:

- Development of the proposed Trans-Texas Corridor
- Modal diversions of freight and commuters
- Safety and environmental impacts
- Improved rail freight efficiencies
- Economic development impacts

To support its work in these areas, TxDOT is involved in rail planning activities, research, railroad safety inspection and the implementation of policies and legislation related to railroads in the state.

Meeting the Challenge

Rail lines, water ports and intermodal facilities are a critical component of the Texas multimodal transportation system. The transportation system not only gives Texans mobility options for access to jobs, services, and recreational activities, but also integrates Texas businesses into the worldwide economy. The state's economy depends, either directly or indirectly, on the efficiency of the entire transportation system. Improvements made to Texas rail infrastructure will enhance the safety, security, economic stability and environmental quality of all Texans.

TxDOT may accomplish system-wide improvements by entering into public-private partnership agreements to provide investments in freight rail relocation projects, rail facility improvements, rail line consolidations, or new passenger rail or intermodal facility developments. Numerous examples around the country have proven this type of strategy for transportation system improvements can be successful. According to a report on the state of the national rail system, "relatively small public investments in the nation's freight railroads can be leveraged into rather large public benefits for highway infrastructure, highway users and freight shippers."[2]

Chapter 1: Plan It

Rail Planning and Development

Railroads contribute significantly to the Texas economy via employment, retirement pensions, freight movement, and passenger services that benefit tourism and economic development. Economic development stimulates transportation demand by creating new jobs, new businesses, and business expansions. Policies and programs that encourage successful operations of the freight and passenger rail systems in Texas will benefit the economic vitality of the state. TxDOT will focus on specific rail improvements that will enhance public safety, mobility and efficiency which will benefit the state's multimodal transportation system.

Issues:

Fiscal constraints limit the development and improvement of needed transportation services. Transportation providers will need to seek a partnered approach to planning and developing new systems to address immediate and long-term demands.

The most significant issues defining the Texas rail planning process are:

- Safety
- Freight efficiencies
- Congestion
- Corridor availability

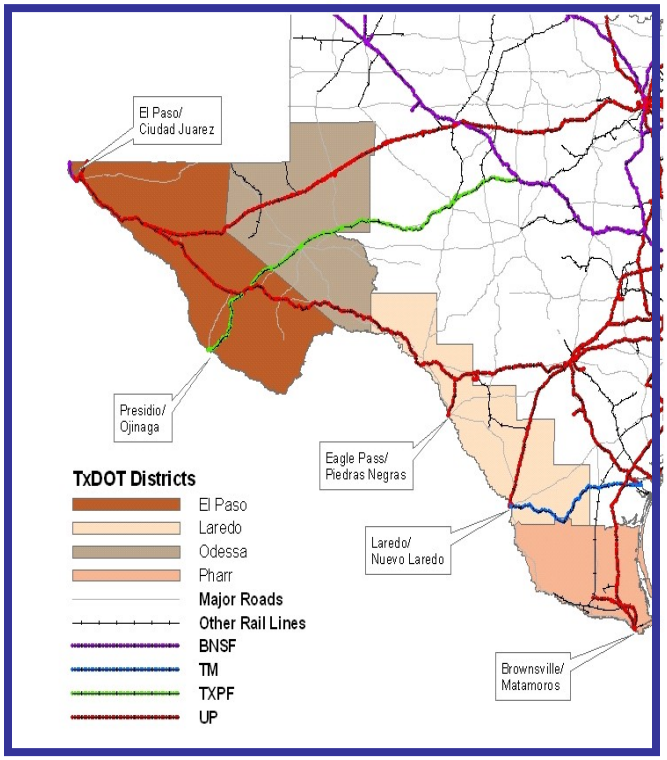
Public Benefits/Opportunities:

There are multiple public benefits that will be derived from developing public-private partnership and policy strategies to deal with statewide rail system issues. The Governor, the Texas Legislature, and the Texas Transportation Commission (commission) have actively pursued long-term multimodal improvements to the entire transportation system.

Safety:

Since the mid-1990s, Texas has been the center of international trade between the U.S. and Mexico, with rail as a major contributor to the movement of freight between the two countries. As shown in Figure 2, five of the seven locations for rail traffic to cross the U.S.-Mexico border are located in Texas.

Figure 2
Texas-Mexico Rail Crossings



In January 1994, the enactment of the North American Free Trade Agreement (NAFTA) spurred already increasing trade levels between the U.S. and Mexico to incredibly high levels. Although trucks are the dominant mode of transportation for U.S. trade with Mexico, the amount of rail freight and its importance to the Texas transportation system has grown significantly, with rail car volumes at Texas

border crossings more than doubling between 1994 and 2000[3].

Increases in freight volume have sparked renewed concerns about safety along the states highways as well as safety in and around busy freight railroads running through heavily populated urban areas. These concerns have been exacerbated by rail incidents in and around urban areas. These safety concerns have prompted local, regional and state officials to examine the possibility of re-routing high volumes of overhead or through freight away from population centers. Studies are currently underway to determine how specific regional rail operations could be improved while also providing enhanced public safety with the increasing rail activity.

The rail system in Texas comprises national, regional, and local railroads that may vary greatly in types of cargo, operating speeds, and frequency of operation. In order to promote transportation safety, both federal and state laws are in place to regulate railroad operations. The Federal Railroad Administration (FRA) has established rules and standards that must be observed by all freight and passenger-carrying railroads (excluding light-rail facilities).

TxDOT is involved in both rail planning and the administration of state and federal highway-rail grade crossing improvement funds to implement measures that improve grade crossing safety. In order to consolidate all rail safety and planning activities under one agency, the 79th Texas Legislature transferred all powers and duties regarding the regulation of railroads to TxDOT. Effective October 1, 2005, Texas Railroad Commission employees involved with rail safety inspections will transfer to TxDOT. These duties will continue to be performed in conjunction with the Region V activities of the FRA in Fort Worth.

Freight Efficiencies:

Texas' proximity to the Gulf Coast and Mexico, its agricultural and manufacturing production levels, and its large urban areas positions the state as a major contributor to the movement of freight, making the viability of its rail freight system invaluable to future economic strength.

Figure 3 - Texas Ports and Rail

The Texas ports shown in Figure 3 comprise some of the nation's busiest rail hubs due to a combination of maritime shipping, manufacturing, refineries, and a large population base, with the Port of Houston representing one of the busiest in the nation. Ship traffic is a stimulus for rail growth and most Texas ports experienced significant increases in the amount of cargo handled during the last decade.

TxDOT is involved in rail planning activities, research, and the implementation of policies and legislation related to railroads in the state. The TRSP defines the current status of the Texas railroad system and identifies

ways to improve this important transportation resource in order to enhance statewide mobility and safety. It can be used in conjunction with federal and private sector programs to develop and implement regional programs to modernize transportation systems by focusing on the development or improvement of:

- Freight rail systems (including ports and border crossings);
- Passenger rail systems;
- Air quality improvement;
- Economic development facilities; and
- System efficiency

Congestion Relief:

Expanding trade, a growing population and a strong economy are contributing to increased traffic, roadway congestion and safety concerns in Texas. With larger volumes of freight moving between Texas' metropolitan areas, increased rail transport may be an option for reducing road congestion. By providing competitive service and efficient intermodal transfers, it may be possible to divert a portion of the truck freight to rail.

Not only do conflicts between trains and automobiles at grade crossings contribute to roadway congestion, they also slow the progress of trains traveling throughout Texas. Grade crossings require traffic to slow down or stop, increasing travel times, creating congestion and causing accidents. Train progress can also be hindered by large numbers of at-grade crossings in an area. Although not required to do so by law, train crews or rail company policies may direct slower operations in such locations due to heightened concern about collisions.

Projected increases in traffic and congestion will have a negative impact on air quality in key Texas cities.[4] Such impacts may heighten demand for rail as a transportation alternative.

Corridor Availability for Transportation Improvements:

A comprehensive statewide program to improve Texas transportation corridors would emphasize transportation efficiencies by providing for:

- Expansion of Highway Facilities
- Truck Routes
- Intermodal Transfer Facilities
- Commuter Rail

The Transportation and Efficiency Act of 2001 (TEA-21) tasked state departments of transportation and metropolitan planning organizations with developing intermodal transportation systems that address freight as well as passenger mobility.

Improvements to the rail system that involve the relocation of some or all through freight movements could provide opportunities for highway expansion and/or the development of commuter rail.

Program Delivery Methods

TxDOT's immediate rail program is focused on improving rail freight efficiencies, optimizing the public benefits of rail transportation projects, and preserving transportation corridors for future services and connectivity to future facilities. As such the program relies on new legislative tools, potential Trans-Texas Corridor development and potential benefits to be gained from entering into public-private partnerships with freight railroads to relocate through freight traffic in multiple areas around the State.

Legislative Authority:

The 78th and 79th Texas Legislatures passed legislation that enhances TxDOT's ability to improve transportation safety and infrastructure in Texas. The major rail issues addressed by this legislation[5] are:

- TxDOT assumes all powers and duties related to railroads from the Texas Railroad Commission;
- TxDOT will be allowed to acquire, finance, construct, maintain and operate freight or passenger rail;
- TxDOT will administer most federal funding used on construction or maintenance of rail infrastructure[6];
- TxDOT may enter into Comprehensive Development Agreements for rail projects; and
- TxDOT may enter into agreements with public or private entities using pass-through fares for reimbursement of facility expenses.

If a constitutional amendment is approved by voters in November, 2005, the Texas Rail Relocation and Improvement Fund[7] will fund rail improvement projects. The establishment and administration of a railroad relocation and improvement fund will enable TxDOT to plan, design, and implement passenger and freight rail relocation and improvement projects that provide public benefits such as:

- Enhanced safety
  - at grade crossings, and
  - by rerouting through hazardous materials shipments from urban areas;
- Increased mobility
  - by reducing vehicular-rail conflicts and congestion,
  - improving freight flows, and
  - potential diversions of freight from highway to rail;
  - development of passenger rail systems;
- Improving air quality
  - through reduced vehicular idle time at grade crossings, and
  - reduced locomotive emissions in urban areas; and
- Expanding economic development opportunities, through improved transportation systems.

TxDOT has limited funding available for rail planning and has employed various strategies to address priority rail planning issues in the state. The rail relocation and improvement fund would authorize grants of money and allow issuance of obligations to use the tools provided by the Texas Legislature. This would provide TxDOT with the resources necessary to implement much needed statewide and regional rail planning projects that could benefit freight rail efficiencies which may also benefit passenger rail systems.

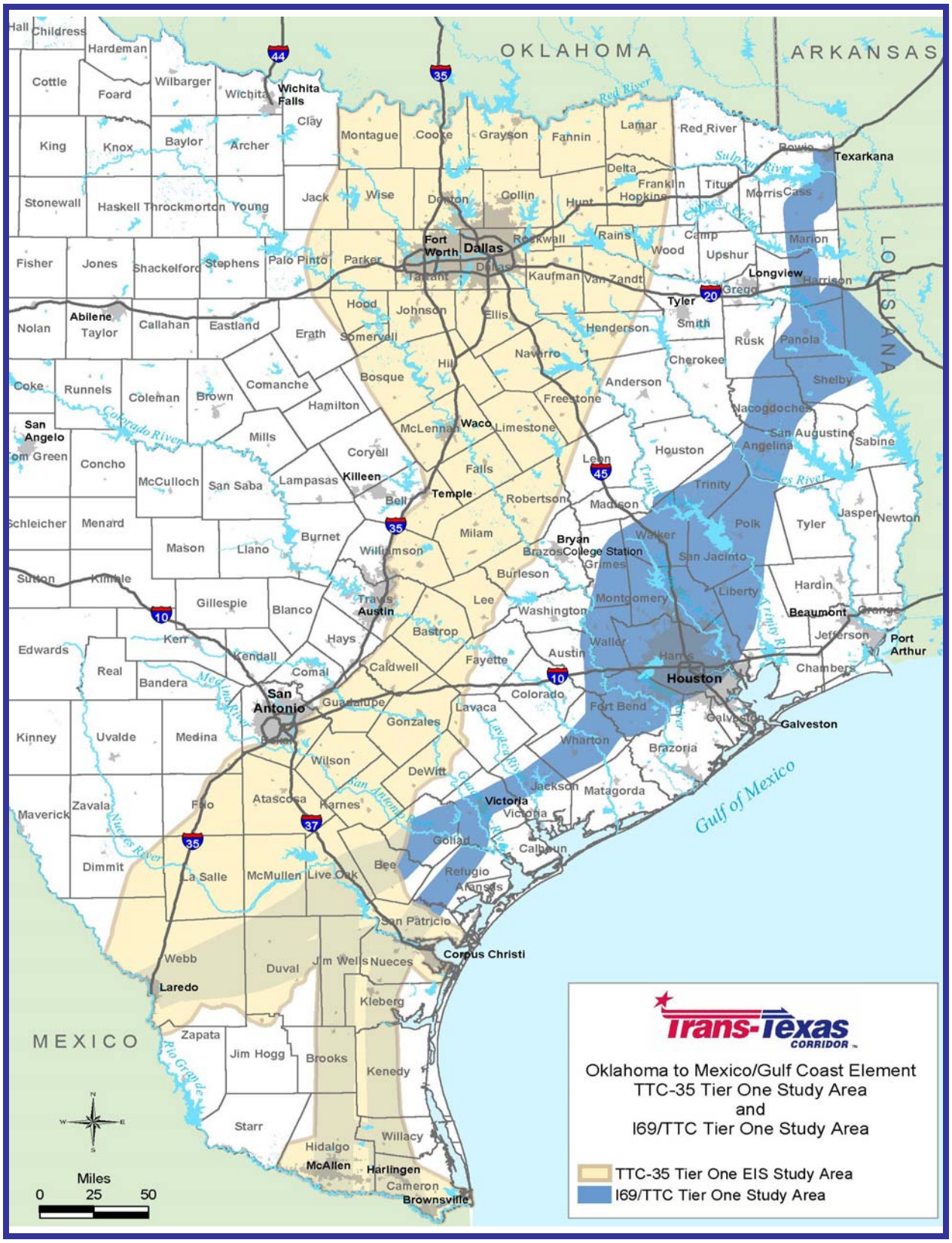
Trans-Texas Corridor Development:

The Trans-Texas Corridor (TTC) is a proposed multi-use, statewide network of transportation routes in Texas that will incorporate existing and new highways, railways and utility corridors. Specific routes for the TTC have not been determined, but the public involvement process is being conducted on two proposed routes that would generally parallel I-35 (TTC-35) and I-69 (TTC-69). (Figure 4)

As envisioned, each route may include:

- Separate lanes for passenger vehicles and large trucks;
- Freight railways;
- High speed commuter railways;
- Infrastructure for utilities including water lines, oil and gas pipelines, and transmission lines for electricity and broadband; and
- Other telecommunications services.

Figure 4 Proposed TTC-35 and TTC-69



Plans call for the TTC to be completed in phases with routes prioritized according to Texas' transportation needs. TxDOT will oversee planning, construction, ongoing maintenance, and operations.

TxDOT's Texas Turnpike Authority Division (TTA) has been designated as the lead office to oversee the development of the corridor routes. Developing a transportation project the size and scope of TTC will require extensive coordination and cooperation among transportation planners, state and federal agencies, governmental entities, private sector developers and the public. The design, financing and operation of individual elements of the TTC will remain flexible in order to maximize private sector resources, deliver projects sooner and save taxpayers money.

Federal environmental studies for both the Oklahoma to Mexico/Gulf Coast (TTC-35) element and Northeast Texas to Mexico (I-69/TTC) began in early 2004. These studies will cover broad expanses of land within which each route might be built.

Through the Comprehensive Development Agreement procurement process, TxDOT solicited and received three detailed long range development proposals for the TTC-35.

On December 16, 2004 the commission selected a consortium composed of Cintra, Concesiones de Infraestructures de Transporte, S.A. and Zachary Construction Corporation (Cintra-Zachary) to prepare a master development plan and master financing plan for the TTC-35 corridor and to possibly develop facilities within the corridor. Cintra-Zachary proposes to invest $6 billion to implement phased development of the corridor between Dallas and San Antonio by 2010, to pay the state $1.2 billion in concession fees that could be used for additional transportation improvements that are part of the TTC.

Short and long term proposed rail components of the TTC-35 include relocating UP's through freight rail services between Austin and San Antonio, high speed passenger rail between San Antonio and Dallas and dedicated freight rail lines between Dallas and Austin.

Development of the TTC rail components may result in that mode being separated from the highway components in certain areas. This scenario will occur if the engineering requirements for rail development are significantly incompatible with the engineering requirements for the highway systems.

Rail Relocations and Public-Private Partnerships:

TxDOT's challenge is to establish goals, performance measures, and targets that support the objectives of the Commission over a railroad transportation system that is predominantly owned, operated, and funded by the private sector.

In March 2005 the Governor signed Memorandums of Understandings (MOUs) with the primary Class 1 railroads of Texas, the UP and the BNSF. Parts of these MOUs acknowledged that:

- Investments in the state's freight rail system could be leveraged to provide major public benefits;
- Improvements in the statewide freight rail system will offer opportunities to maximize the safety of citizens while providing increased capacity for freight;
- Some freight rail corridors could be made available for alternate uses if through freight could be relocated to new corridors; and
- Some rail relocation projects may be achieved through public-private partnerships offering opportunities to improve both the state and national freight rail system.

These agreements should assist TxDOT's statewide freight rail study efforts aimed at examining key transportation corridors whose safety and mobility might be significantly improved to:

- Relieve heavily populated urban areas of freight related gridlock;
- Possibly open corridors for passenger rail development or other modal facilities;
- Reduce or eliminate highway-rail crossing conflicts; and
- Create mutually beneficial solutions for both the public and private sectors through improved efficiencies.

By understanding the capacity and operational constraints of existing freight systems, TxDOT can formulate a rail program that will enhance mobility and improve safety on the state transportation system. In this manner, the state should be able to facilitate regional and intercity passenger rail development and improvements.

Passenger Rail Development

Passenger rail systems in Texas are defined as intercity and commuter rail services contributing to a multimodal strategy by providing people with choices for completing their travel needs. Passenger rail service in Texas is currently provided at the regional/intercity level by the National Railroad Passenger Corporation (Amtrak) and at the commuter level by Dallas Area Rapid Transit (DART) and Fort Worth Transportation Authority (the "T").

Commuter Rail Systems and Expansion:

As noted above the only region in Texas with existing commuter rail service is the Dallas-Fort Worth metroplex. Service on the Trinity Rail Express is jointly provided by DART and the "T". There are several entities that are in various stages of planning or preliminary engineering studies to develop commuter rail systems within the state, the most notable among them being the efforts put forth by:

- The Austin-San Antonio Intermunicipal Commuter Rail District, seeking to establish a 110-mile commuter rail line between Georgetown and San Antonio, along the IH-35 corridor; and
- The Houston area to determine the feasibility of starting commuter rail lines along multiple corridors into the downtown area to connect with Houston METRO's light rail line.

Intercity Rail:

There are multiple passenger rail advocacy groups around the state that are interested in expanding intercity passenger rail services currently provided by Amtrak.

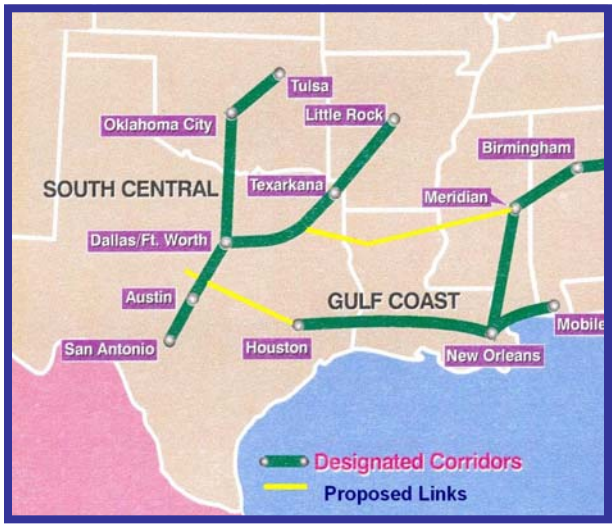
Amtrak serves Texas cities along three separate routes: the Sunset Limited, the Texas Eagle and the Heartland Flyer. While annual ridership on these routes grew to over 270,000 in 2004, Amtrak, which has to rely on use of private railroad dispatching and infrastructure, remains a small component of the Texas intercity passenger transportation network.

High Speed Rail Corridors:

The three Texas Amtrak corridors are also part of two federally designated high-speed rail corridors (HSRC) that Texas shares with adjoining states (Figure 5):

- The South Central: combines the Texas Eagle and Heartland Flyer routes, including Arkansas and Oklahoma; and
- The Gulf Coast: runs along the Sunset Limited route from Houston east to Louisiana, Mississippi, Alabama and Georgia.

Figure 5 - High-Speed Rail Corridors



There have been grass-roots efforts to expand Texas High Speed Rail Corridors in order to link the South Central corridor to the Gulf Coast corridor. The "Texas T-Bone" (shown in Figure 5) would connect the two corridors via a link from Fort Hood through Bryan-College Station and into Houston. Another group is interested in extending service from Dallas through to Shreveport and ultimately connecting to the Gulf Coast corridor at Meridian, Mississippi.

<u>High Speed Rail via Trans-Texas Corridor:</u>

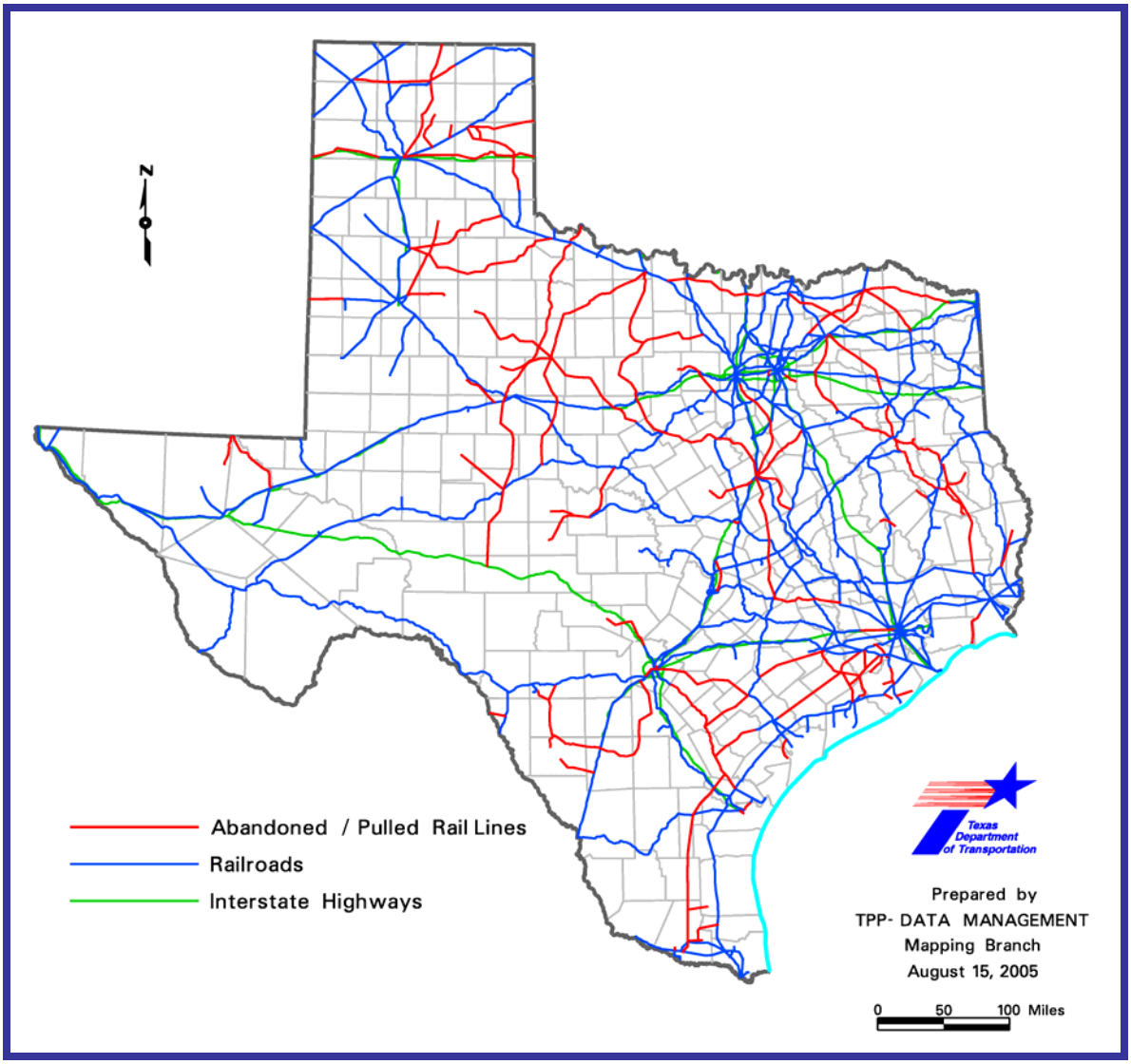
As mentioned earlier, plans for the TTC include not only expanded systems for passenger mobility, but also for freight mobility. It is widely believed that by enabling a greater magnitude of freight rail efficiencies, commuter rail system development and high-speed passenger rail system development will follow with a greater degree of support. The current position of private rail carriers is that their customers (who desire minimal inventory storage requirements) must be serviced as quickly as possible, due to the competitive nature of freight forwarding and the increasing expectation of just in time deliveries.[8]

Current legislation allows TxDOT to secure operators for intercity passenger rail projects. TxDOT will analyze proposals from interested operators to determine the best service options for Texas.

Trinity Rail Express commuter train passing American Airlines Center; Courtesy of Dallas Area Rapid Transit

Chapter 2: Build & Maintain It

Figure 6 Abandoned Rail Lines in Texas 1953-2005



As the state's transportation agency, TxDOT provides for the coordination and development of state rail planning documents and the performance of special studies. The TRSP serves to identify current and proposed rail projects, determine infrastructure and capacity constraints on the state's rail system and serve as the planning instrument for freight and passenger rail operations and infrastructure or facility improvements.

Capital and Maintenance Investment

Figure 6 shows the number of lines lost between 1953 and 2005. Texas has lost 39 percent of its total track miles since 1932. The loss of viable transportation options has had a negative economic impact on many rural communities. In addition, the smaller rail system's ability to handle steadily increasing traffic levels is cause for concern.

Growth trends translate into more trains operating over fewer miles of track, placing greater demands on operators' resources to invest in improved infrastructure.

Since railroads contribute significantly to the state's economy, policies and programs that encourage the successful operation of freight and passenger rail transportation in Texas should benefit the state's economic vitality. Class I railroads find it difficult to obtain funding to construct new rail infrastructure, while short lines are limited in their ability to finance major infrastructure improvements. Some current and recent railroad construction projects in Texas include:

- *South Orient Railroad*: A 381-mile railroad owned by the State of Texas. Rail improvements have been a joint effort by the operator and the State, using federal grants and private funds, to upgrade the line for cross-border freight rail service to and from Mexico at the Presidio gateway.

- *Alamo North Texas Railroad Construction*: A 2.25-mile rail line construction project in Wise County to extend from a connection with UP to an aggregate quarry.

- *The Calhoun County/Seadrift Rail Line Construction*: A 7.5-mile BNSF rail line to connect the Union Carbide industrial complex at Seadrift with a UP line that runs between Placedo and Port Lavaca.

- *Railport Industrial Park*: A 2-mile rail line owned and operated by the Ellis County Rural Rail Transportation District (RRTD) provides alternate service to a business and industrial park adjacent to a BNSF track, with connections to UP, providing shippers and industries with competitive, two-carrier rail service.

Freight System Needs

The extensive Class I infrastructure in Texas necessitates continual investment by the railroads to maintain and upgrade their lines. Generally, rehabilitation and repair of rail lines is determined, prioritized, and performed by the line owner. The following are concerns that have a significant effect on the efficient movement of rail freight through the state:

- Poor Track Conditions – Track conditions that do not allow train speeds of 40 miles per hour or better. Some lines will also need increased track capacity and switching tracks to handle projected tonnages for 2025.

- Storage Yards – The Class I railroads are evaluating investments in several urban areas to reduce bottlenecks around terminals and switching facilities impacting trains and vehicle/pedestrian traffic.

- Rail Bridges – Evaluations of capacity needs should be performed on the six international rail bridges between Texas and Mexico. Also, there are numerous aging rail bridges within the state which are structurally obsolete based on the increased carload standard of 286,000 pounds.

- Regional and Short line Infrastructure - Short line railroads face significant challenges in maintaining and upgrading their infrastructure. Many were formed as the result of Class I railroads divesting themselves of marginally profitable lines, or operate on deteriorated lines saved from abandonment. Short line owners and operators invest most of their capital to acquire their facilities and have very limited resources available for line maintenance. Major rehabilitation or upgrades are generally not financially possible for these operators.

- Ports - Rail access to most ports has also become difficult due to infrastructure and capacity constraints. Additionally, rail-highway traffic conflicts on and near port boundaries are increasing as development occurs.

- Rail/Highway Grade Crossings – Non-signalized warning systems at crossings reduce train speeds. Train/vehicle traffic conflicts in urban areas also increase congestion. Community and transportation planners should consider the location of rail lines to eliminate grade crossings and avoid constructing additional crossings.

- Freight Rail Bottlenecks – Increasing freight rail volumes are straining the capacity of existing infrastructure and causing bottlenecks where freight flows are heaviest. Delays, congestion, and air quality problems can be caused by the inefficient operations and capacity constraints of these locations.

- Directional Traffic – Single-track operational constraints reduce train handling capabilities. Double tracking and lengthening sections of track next to the mainline which allow trains traveling in opposite directions to pass each other (passing sidings), greatly increases line capacity.

Passenger System Needs

Growing congestion along Texas' major intercity corridors may encourage people to seek alternatives to driving. Unfortunately, efforts to develop national rail system routes by Amtrak have not provided intercity passenger rail service that adequately meets Texas' needs. While the national, long-distance orientation of Amtrak's service usually makes it a poor choice for shorter intercity travel, a market may exist for dependable, high speed, high amenity rail services that provide passengers with the convenience of frequent departure and arrival times. Current passenger rail service in the state deters potential users as run-times between major cities in Texas are not competitive with either commercial air carriers or motor vehicles, and fare savings are not compelling when time considerations are taken into account.

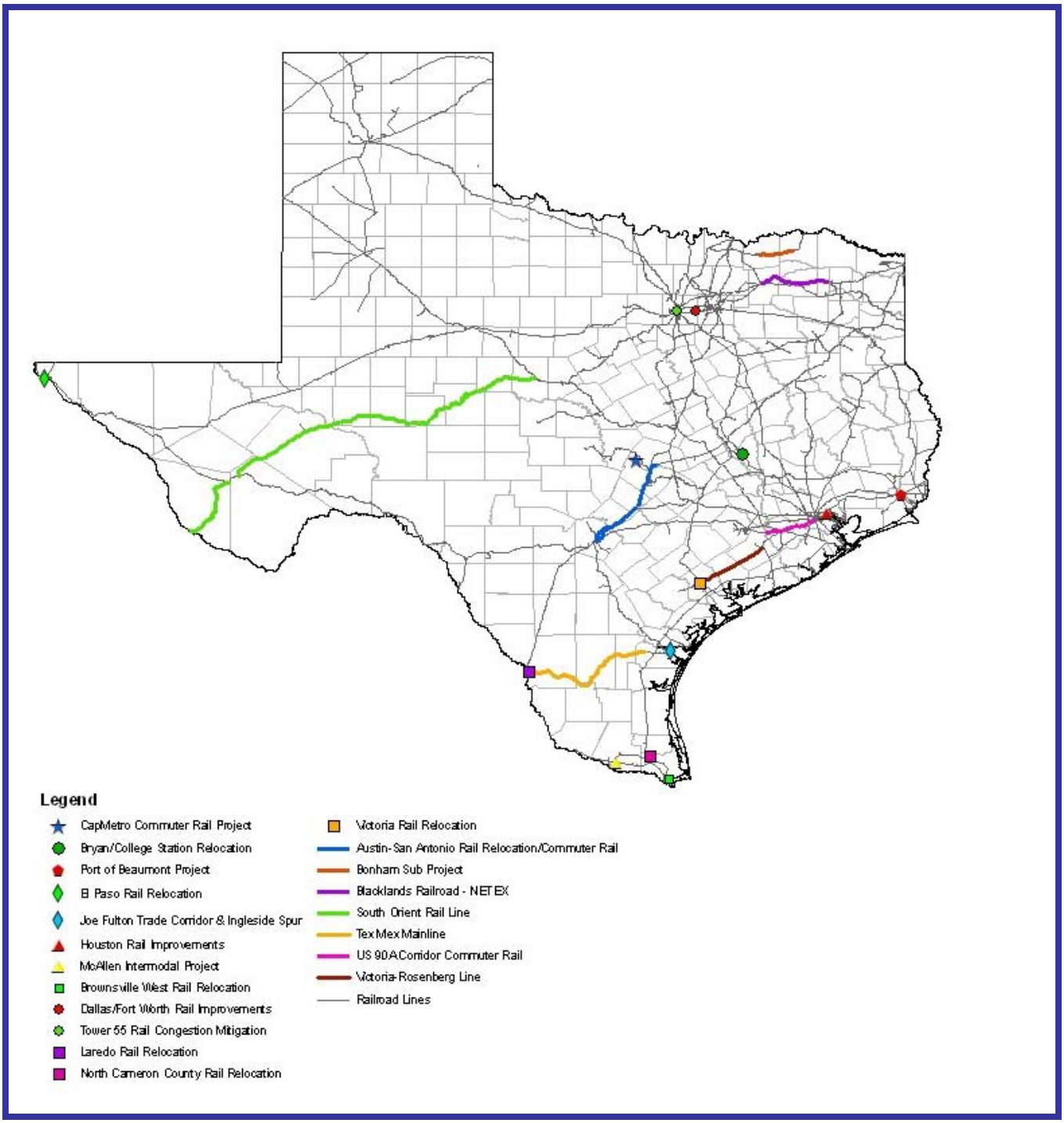
Currently, metropolitan passenger rail services in the state are limited to the Dallas-Fort Worth region and Houston. Each of these areas is served by commuter and/or light rail services operated by local transit agencies. In operation for only a few years, passenger rail services in these areas have created demand for system expansions[9], as well as a growing interest in transit-oriented economic development projects around stations.

The increase in freight movements over the Texas rail system has significantly impacted existing passenger rail service on shared lines. While total rail line mileage has decreased, traffic and total tonnage has increased. Further increases in freight traffic on existing routes can limit the potential to operate faster trains on those routes designated as HSRCs in Texas. In order to increase passenger rail speeds, rail configurations that separate freight rail from passenger trains may need to be developed on certain corridors.

Infrastructure improvements along HSRCs would cut travel times on passenger rail routes. Improvements of these routes between our large metropolitan areas could result in the greatest benefit for passenger rail service. The designation of and commitment to upgrading Texas HSRCs should provide access to resources and improve passenger rail dependability.

Figure 7 illustrates the fact that there are many rail infrastructure projects in Texas vying for available resources for freight, passenger and intermodal improvements. The estimated funds needed to make all of the improvements identified on this map are approximately $16 billion.

Figure 7 Potential Rail Projects in Texas



Rail Safety Needs

As transportation demands increase on the Texas rail system, public safety issues become a greater challenge. The reliability of railroad infrastructure and the safe movement of hazardous materials by rail are of major concern. Although the federal government has primary jurisdiction over these issues, TxDOT will play an important role in rail safety inspection. In addition, TxDOT will continue to plan for the safety of the motoring public traversing the rail/highway grade crossings in the state.

The potential for automobile-train collisions result in:

- Slow train and vehicular movements (especially in areas with large numbers of crossings);
- Reduced emergency vehicle response time;
- Increased travel times; and
- Increased congestion.

While the installation of signalized warning devices has reduced grade crossing accidents, over 50 percent of these incidents still occur at crossings with warning systems in place. The greatest numbers of these accidents are the result of motorists driving around lowered crossing gates[10]. Table 1 depicts grade crossing and trespass statistics in Texas for 2004.

Table 1

2004
Texas Grade Crossing Statistics[11]

Category	Number	National Ranking
Grade Crossing:		
Fatalities	26	3
Injuries	99	1
Trespass:		
Fatalities	41	2
Injuries	52	1

The average annual funding available to Texas from the Federal Railroad Signal Program for 2002 to 2006 (Table 2) is slightly more than $29 million. This covers roughly 3 percent of the estimated needs to improve crossings statewide[12].

Table 2

Federal Railroad Signal Program Funds in Texas[13]

Program Year	Authorized Amount
2002	$25,830,000
2003	25,830,000
2004	25,120,000
2005	38,500,000
2006	30,060,000

The average annual expenditure per crossing project between 1997 and 2001 was $170,138. There are over 5,000 crossings in the state equipped with only signs to warn motorists that they are approaching a grade crossing and must yield to any train traffic. It would cost an estimated $850 million to equip each of these crossings with flashing lights and gates.

Chapter 3: Use & Manage It

The primary functions of the statewide rail-planning program are to:

- Enhance mobility and safety through improvements to the Texas rail system;
- Maintain essential rail services;
- Promote connectivity between different modes of transportation; and
- Preserve facilities and corridors for other future transportation uses.

To support these functions, TxDOT will:

- Evaluate lines proposed for abandonment and determine their future transportation value;
- Identify freight inefficiencies and propose solutions;
- Coordinate funding to acquire, rehabilitate or promote new facility construction; and
- Evaluate multimodal opportunities.

TxDOT does not have the authority to expend state highway funds that are constitutionally dedicated to public roads on rail projects. Past projects have been completed with specific legislative appropriations. Passage of HB 3588, HB 2702 and HB 1546 by the Texas Legislature has enabled the expenditure of non-dedicated funds for state-owned rail projects as well as funds from other sources, such as loans and grants. If passed by voters in November, HB 1546 will create the possibility of financing regional rail relocation and infrastructure projects. This legislation will allow TxDOT to improve statewide transportation system safety and efficiency through targeted improvements to the Texas rail system.

The state rail planning process concentrates on local and system-wide rail considerations. Planning for branch line acquisitions is often a reaction to retain rail service at the local level due to potential rail abandonment. System-wide planning processes take a much broader view of rail operations in the state, treating the rail system as a component of the overall transportation network.

FRA T-2000 Track Inspection Vehicle

UPRR Intermodal Train

The Texas Rail System Plan and the Texas rail planning process can be used to identify, evaluate, develop and implement specific projects throughout the state. The objectives and their supporting actions of the Texas rail planning process are listed in Table 3.

Table 3 - Texas Rail System Plan Objectives and Actions

OBJECTIVES:	ACTIONS:
Reliable Mobility	• Assist local and regional efforts to expand or implement passenger rail systems as a transportation alternative.
	• Determine the benefits of utilizing rail transport to reduce Vehicular Miles Traveled (VMT).
	• Encourage public involvement in rail issues and rail system development to assure awareness of the benefits of rail transportation for goods and people.
Improved Safety	• Determine key rail corridors where through freight rail services can be relocated or improved to ensure safety of large urban populations from hazardous materials shipments.
	• Partner with communities, railroads and rail safety inspectors to ensure the safety and integrity of the rail system of Texas.
	• Emphasize public education regarding safety at rail-highway crossings.
	• Maintain, evaluate and upgrade grade crossings on the state highway system.
System Preservation	• Analyze specific freight and transportation corridors in the state to identify freight bottlenecks and determine possible multimodal alternatives that will improve freight flows.
	• Assist rail freight carriers in maintaining or improving services in specific corridors through applicable federal and state programs.
	• Encourage rail preservation by Rural Rail Transportation Districts (RRTDs) and provide evaluation, analysis, and assistance with RRTD programs.
	• Support ports, rail carriers and intermodal facilities with access and infrastructure issues wherever possible.
	• Create local awareness of rail issues and rail benefits. Work with metropolitan areas to develop rail studies, programs, and funding sources.
Economic Vitality	• Continue the development of the Trans-Texas Corridor, through coordination with other agencies as well as development of public/private partnerships to finance, build, and operate the corridor.
	• Work with railroads to evaluate, improve and expand services as appropriate.
	• Promote continued development of rail connections through monitoring and evaluating freight rail traffic flows and connectivity.

Meeting Freight System Needs

The significance of freight movement has seen increasing prominence in transportation planning. Federal regulations stipulate that all programs and projects utilizing federal funds must be included in each metropolitan planning organization and the Statewide Transportation Improvement Program. Based on forecast commodity flow and VMT increases it is necessary for transportation planners to coordinate with rail carriers, ports, and trucking companies to develop intermodal transportation facilities within their metropolitan areas.

Funding for rail projects in Texas prior to the passage of HB 3588 and HB 2702 was limited to specific appropriations. The legislative authority contained in HB 2702 permits new funding methods such as comprehensive development agreements and pass-through fares for state-owned rail infrastructure. Toward that end, TxDOT will seek to:

- Maximize the use of state and federal funds available for rail projects;
- Continue a robust research program regarding the state's rail transportation needs; and
- Encourage the utilization of funding mechanisms provided by legislation to improve the rail system as a means to reduce highway congestion and enhance air quality.

The new transportation reauthorization bill (SAFETEA-LU) has also created a grant program for states to use in rail relocation projects, providing $350 million from 2006 through 2009 for applicable projects.

Meeting Passenger System Needs

The rail planning process may be used to assist in developing regional passenger rail programs which could provide alternative commute options and possibly help relieve congestion along busy corridors. Local participation in these programs is essential, while development funding could be secured through a combination of federal programs and private investments.

In order to enhance passenger rail on existing rail corridors, the following upgrades would need to be considered:

- Improvements to tracks, ties, rail condition and drainage systems;
- Double tracking or passing sidings;
- Implementation of advanced grade crossing technologies or the creation of "sealed corridors" through the removal of all at-grade crossings;
- Improved train control/operating systems;
- New or refurbished rolling stock; and
- Renovated stations to enhance train dwell times.

Some of these improvements would benefit freight rail operations.

Meeting Rail Safety Needs

The movement of hazardous materials by railroads through heavily populated urban areas has become an issue of national significance. In Texas, multiple derailments have caused local and state officials to seriously consider the vulnerability of large populations to the impacts of high levels of train activity within their metropolitan boundaries. To that end, TxDOT is discussing public-private partnering agreements with Class 1 railroads. In order to diminish the effect of potential accidents on large population centers, some consideration is being given to relocating through freight to other alignments.

Grade crossing safety is also a major concern. While statewide statistics reflect a

decline in grade crossing fatalities, the number of train/vehicle incidents illustrates a need remains to promote stronger public awareness of crossing safety to further reduce these numbers. Several new safety measures being implemented or considered are:

- Median Barrier Protection – Median barriers constructed in the center of the highway prevent vehicles from crossing around lowered rail/highway crossing gates.
- Four Quadrant Gate Systems – Crossing gates block all four quadrants of the road crossing, preventing vehicles from going around lowered crossing gates.
- Sealed Corridors – Crossings are modified to prevent vehicular traffic from intruding into a crossing during train operations through the use of median barriers, four-quadrant gates and crossing eliminations.
- Installation of Reflector Systems – High intensity reflectorized material installed on crossbucks and track signs[14] at non-signalized crossing locations. In addition to improving crossbuck visibility, trains passing at night produce a "flicker" effect from vehicle headlights, helping notify motorists of their presence.
- Crossing Horns - This system reduces the disturbance caused by passing trains to area residents while improving safety. These systems require a cooperative agreement between the railroad and the local community.

Railroad Safety Inspection Program

In September 1983, the 68th Texas Legislature authorized the Railroad Commission of Texas (RRC) to implement a railroad safety inspection program in conjunction with the FRA. As a result of the legislature's action, Texas now has one of the largest state rail safety programs in the nation. The 79th Texas Legislature transferred the program to TxDOT, effective October 1, 2005.

The rail safety inspection program is primarily directed toward the enforcement of state and federal rail safety standards for track, locomotives, freight cars, signal and train controls, operating practices of employees, and the transportation of hazardous materials. The State Rail Safety Program is conducted in coordination with FRA's rail safety inspectors.

Conclusion

The Texas Legislature and Congress have provided the tools to allow TxDOT and its rail planning partners to develop improvements that will enhance public safety, improve transportation efficiency and ensure multimodal transportation alternatives for Texas in the years to come. The Texas Transportation Commission is committed to improve rail transportation as an essential component of the Texas transportation system.

References Cited

[1] Texas Department of Transportation, Strategic Plan 2005-2009.

[2] American Association of State Highway and Transportation Officials, "Freight-Rail Bottom Line Report", September, 2002.

[3] Texas A&M International University, Laredo, Texas.

[4] VMT forecast for Texas counties developed by Cambridge Systematics, Inc.

[5] HB 3588, 78th Texas Legislature, Regular Session and HB 2702, 79th Texas Legislature, Regular Session, www.capitol.state.tx.us

[6] "…Except as provided by Subsection (c), money appropriated or allocated by the United States for the construction and maintenance in this state of rail facilities owned by any public or private entity shall be administered by the commission and may be spent only under the supervision of the department."

[7] HJR 54, 79th Texas Legislature, Regular Session, www.capitol.state.tx.us

[8] Draft Texas Rail System Plan Stakeholders Meeting, November 13, 2002.

[9] NCTCOG, Mobility 2025, April 2005; H-GAC 2025 Regional Transportation Plan (Draft), June 2005.

[10] Source: Federal Railroad Administration, *Crash Database.*

[11] Source: *Statistics and Reports,* published by the Operation Lifesaver program; www.oli.org/library/stats.html

[12] Based on estimated need of $850 million to upgrade 5,000 passive crossings with signalization.

[13] TxDOT, Traffic Operations Division.

[14] "State Grade Crossing Rules and Regulatory Authority" and Texas Administrative Code 25.73.

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